UNITED STATES PATENT OFFICE.

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FERTILIZER-DISTRIBUTER ATTACHMENT FOR GRAIN-DRILLS.

SPECIFICATION forming part of Letters Patent No. 580,644, dated April 13, 1897.

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To all whom it may concern:

Be it known that I, HENRY C. HAM, a citizen of the United States, residing at Liberty, in the county of Union and State of Indiana, have invented certain new and useful Improvements in Fertilizer Attachments for Grain-Drills, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to fertilizer attachments for grain-drills; and it consists of certain novel means for delivering the fertilizer to the feed-openings, the construction of which will be hereinafter more particularly pointed out and claimed.

Heretofore force-feed fertilizers with a sprocket-chain carrying fingers for feeding the material to the openings have not been successful for several reasons. The fertilizer was very apt to bank against the sides of the hopper. The bottom of the hopper when made of metal soon corroded. The chain, sprockets, and fingers worked into the fertilizer, scraping the entire bottom and requiring great power to move them, the fingers passing over a series of openings in the center of the box regulated by a sliding cut-off making it impossible to secure a positive feed. The arrangement of the sprocket-chain and means and manner of operating it failed to feed the fertilizer evenly and regularly. It is to overcome these objections that my invention is desired; and it consists, essentially, as will be hereinafter more particularly described and claimed, of an endless sprocket-chain with fingers attached to the links thereof traveling in the bottom of the hopper under boxes or guards, the fingers alone coming in contact with the fertilizer to deliver the fertilizer in proper quantities to the staggered feed-tubes, the discharge-openings being left entirely open, but inclosed in housings, so as to admit only a certain quantity at a time, and the quantity of fertilizer fed being regulated only by the speed of the chain.

In the drawings, Figure 1 is a top plan view of my fertilizer-hopper, the housing at one end being removed and the hopper being broken away at the center. Fig. 2 is a longitudinal section of same. Fig. 3 is a cross-section. Fig. 4 is a side elevation with a part broken away, showing one of the stirrer-wheels.

The fertilizer-hopper consists of an ordinary wooden rectangular box made up of bottom A, sides B B, and ends C C. Journaled in the bottom of this box are the sprocket-wheels D E. The sprocket-wheel E is mounted on the stud or pin *a*, which extends downward through the bottom of the box into the bracket *b*. This pin carries the beveled gear-wheel *c*, which meshes with the beveled gear *d*, mounted on the pin *e*, which is journaled in the end of the bracket *b* and in the end extension of the fertilizer-hopper C. Mounted on the outer end of this pin *e* is the sprocket-wheel G, by means of which the feeding devices in the hopper are driven by sprocket-chain from the main axle or from the grain feed-shaft in the usual way. The other sprocket-wheel D is journaled on the pin *g*, which passes down through the casting *h*, and is secured at the bottom of the hopper by the nut *i*. When this nut *i* is loosened, the casting *h* can be drawn in or out to loosen or tighten the sprocket-chain, which is carried by the two sprocket-wheels, by turning the end screw on the end of the hopper. This sprocket-chain K carries on each link projecting fingers *l l*.

L L are the feed-openings through which the fertilizer is fed to the feed-tubes. These feed-openings are staggered across the bottom of the box alternately on one side and the other in order that there may be plenty of room for the fertilizer to come in contact with the fingers of the sprocket-chain. Over each of these feed-openings is a box or housing M M. Secured to the bottom of the box centrally between the parallel portion of the sprocket-chain is the block P to serve as a guide for the sprocket-chain, while to this block is secured the cover O, with its top edges extending out over the sprocket-chain, and provided with sides *o o*, extending down to the fingers on the sprocket-chain, so as to completely inclose and cover the sprocket-chain except the fingers. These fingers are